



## ***Cryptosporidium* Infection**

### **Cryptosporidiosis (KRIP-toe-spo-rid-ee-OH-sis)**

#### **What is cryptosporidiosis?**

Cryptosporidiosis is a diarrheal disease caused by microscopic parasites of the genus *Cryptosporidium*. Once an animal or person is infected, the parasite lives in the intestine and passes in the stool. The parasite is protected by an outer shell that allows it to survive outside the body for long periods of time and makes it very resistant to chlorine-based disinfectants. Both the disease and the parasite are commonly known as "Crypto."

During the past two decades, Crypto has become recognized as one of the most common causes of waterborne disease (recreational water and drinking water) in humans in the United States. The parasite is found in every region of the United States and throughout the world.

#### **How is cryptosporidiosis spread?**

*Cryptosporidium* lives in the intestine of infected humans or animals. Millions of Crypto germs can be released in a bowel movement from an infected human or animal. Consequently, *Cryptosporidium* is found in soil, food, water, or surfaces that have been contaminated with infected human or animal feces. A person becomes infected by swallowing *Cryptosporidium* parasites. You **cannot** become infected through contact with blood. Crypto can be spread

- By putting something into your mouth or accidentally swallowing something that has come into contact with the stool of a person or animal infected with Crypto.
- By swallowing recreational water contaminated with Crypto. Recreational water is water in swimming pools, hot tubs, Jacuzzis, fountains, lakes, rivers, springs, ponds, or streams that can be contaminated with sewage or feces from humans or animals.
- By swallowing water or beverages contaminated by stool from infected humans or animals.
- By eating uncooked food contaminated with Crypto. Thoroughly wash with uncontaminated water all vegetables and fruits you plan to eat raw. See below for information on making water safe.
- By touching your mouth with contaminated hands. Hands can become contaminated through a variety of activities, such as touching surfaces (e.g., toys, bathroom fixtures, changing tables, diaper pails) that have been contaminated by stool from an infected person, changing diapers, caring for an infected person, and handling an infected cow or calf.

#### **What are the symptoms of cryptosporidiosis?**

The most common symptom of cryptosporidiosis is watery diarrhea. Other symptoms include:

- Stomach cramps or pain
- Dehydration
- Nausea
- Vomiting
- Fever
- Weight loss

Some people with Crypto will have no symptoms at all. While the small intestine is the site most commonly affected, *Cryptosporidium* infections could possibly affect other areas of the digestive or the respiratory tract.

### **How long after infection do symptoms appear?**

Symptoms of cryptosporidiosis generally begin 2 to 10 days (average 7 days) after becoming infected with the parasite.

### **How long will symptoms last?**

In persons with healthy immune systems, symptoms usually last about 1 to 2 weeks. The symptoms may go in cycles in which you may seem to get better for a few days, then feel worse again before the illness ends.

### **Who is most at risk for cryptosporidiosis?**

People who are most likely to become infected with *Cryptosporidium* include:

- Children who attend day care centers, including diaper-aged children
- Child care workers
- Parents of infected children
- People who take care of other people with cryptosporidiosis
- International travelers
- Backpackers, hikers, and campers who drink unfiltered, untreated water
- People, including swimmers, who swallow water from contaminated sources
- People who handle infected cattle
- People exposed to human feces through sexual contact

Contaminated water may include water that has not been boiled or filtered, as well as contaminated recreational water sources (e.g., swimming pools, lakes, rivers, ponds, and streams). Several community-wide outbreaks of cryptosporidiosis have been linked to drinking municipal water or recreational water contaminated with *Cryptosporidium*.

### **Who is most at risk for getting seriously ill with cryptosporidiosis?**

Although Crypto can infect all people, some groups are more likely to develop more serious illness.

- Young children and pregnant women may be more susceptible to the dehydration resulting from diarrhea and should drink plenty of fluids while ill.
- If you have a severely weakened immune system, you are at risk for more serious disease. Your symptoms may be more severe and could lead to serious or life-threatening illness. Examples of persons with weakened immune systems include those with AIDS; cancer and transplant patients who are taking certain immunosuppressive drugs; and those with inherited diseases that affect the immune system.

If you have a severely weakened immune system, talk to your health care provider for additional guidance. You can also call the CDC-INFO toll-free at 1-800-232-4636. Also see CDC's fact sheet *Preventing Cryptosporidiosis: A Guide for People with Compromised Immune Systems* at [http://www.cdc.gov/ncidod/dpd/parasites/cryptosporidiosis/factsht\\_crypto\\_prevent\\_ci.htm](http://www.cdc.gov/ncidod/dpd/parasites/cryptosporidiosis/factsht_crypto_prevent_ci.htm).

**What should I do if I think I may have cryptosporidiosis?**

If you suspect that you have cryptosporidiosis, see your health care provider.

**How is a cryptosporidiosis diagnosed?**

Your health care provider will ask you to submit stool samples to see if you are infected. Because testing for Crypto can be difficult, you may be asked to submit several stool specimens over several days. Tests for Crypto are not routinely done in most laboratories. Therefore, your health care provider should specifically request testing for the parasite.

**What is the treatment for cryptosporidiosis?**

Nitazoxanide has been approved for treatment of diarrhea caused by *Cryptosporidium* in people with healthy immune systems. Consult with your health care provider for more information. Most people who have a healthy immune system will recover without treatment. Diarrhea can be managed by drinking plenty of fluids to prevent dehydration. Young children and pregnant women may be more susceptible to dehydration. Rapid loss of fluids from diarrhea may be especially life threatening to babies; therefore, parents should talk to their health care provider about fluid replacement therapy options for infants. Anti-diarrheal medicine may help slow down diarrhea, but talk to your health care provider before taking it.

People who are in poor health or who have a weakened immune system are at higher risk for more severe and more prolonged illness. The effectiveness of nitazoxanide in immunosuppressed individuals is unclear. For persons with AIDS, anti-retroviral therapy that improves immune status will also decrease or eliminate symptoms of Crypto. However, even if symptoms disappear, cryptosporidiosis is usually not curable and the symptoms may return if the immune status worsens. See your health care provider to discuss anti-retroviral therapy used to improve your immune status.

**If I have been diagnosed with *Cryptosporidium*, should I worry about spreading the infection to others?**

Yes, *Cryptosporidium* can be very contagious. Infected individuals should follow these guidelines to avoid spreading the disease to others:

1. Wash your hands frequently with soap and water, especially after using the toilet, after changing diapers, and before eating or preparing food.
2. Do not swim in recreational water (pools, hot tubs, lakes or rivers, the ocean, etc.) if you have cryptosporidiosis and for at least 2 weeks after diarrhea and/or symptoms stop. You can pass *Cryptosporidium* in your stool and contaminate water for several weeks after your symptoms have ended. You do not even need to have an accident in the water. Immersion in the water may be enough for contamination to occur. This has resulted in outbreaks of cryptosporidiosis among recreational water users. **Note:** You may not be protected in a chlorinated pool because *Cryptosporidium* is chlorine-resistant and can live for days in chlorine-treated swimming pools.
3. Avoid sexual practices that might result in oral exposure to stool (e.g., oral-anal contact).
4. Avoid close contact with anyone who has a weakened immune system.

## How can I prevent cryptosporidiosis?

### Practice good hygiene.

1. Wash hands thoroughly and frequently with soap and water.
  - a. Wash hands after using the toilet and before handling or eating food (especially for persons with diarrhea).
  - b. Wash hands after every diaper change, especially if you work with diaper-aged children, even if you are wearing gloves.
2. Protect others by not swimming if you are experiencing diarrhea (this is essential for children in diapers).

For information on recreational water-related illnesses, visit CDC's Healthy Swimming Web site at <http://www.cdc.gov/healthyswimming>.

### Avoid water that might be contaminated.

1. Do not swallow recreational water.
2. Do not drink untreated water from shallow wells, lakes, rivers, springs, ponds, and streams.
3. Do not drink untreated water during community-wide outbreaks of disease caused by contaminated drinking water.
4. Do not use or consume untreated ice or tap water when traveling in countries where the water supply might be unsafe.

For information on choosing a water filter, see the CDC fact sheet *Preventing Cryptosporidiosis: A Guide to Water Filters and Bottled Water* at [http://www.cdc.gov/ncidod/dpd/parasites/cryptosporidiosis/factsht\\_crypto\\_prevent\\_water.htm](http://www.cdc.gov/ncidod/dpd/parasites/cryptosporidiosis/factsht_crypto_prevent_water.htm).

For information on choosing safe bottled water, see the CDC fact sheet *Preventing Cryptosporidiosis: A Guide to Water Filters and Bottled Water* at [http://www.cdc.gov/ncidod/dpd/parasites/cryptosporidiosis/factsht\\_crypto\\_prevent\\_water.htm](http://www.cdc.gov/ncidod/dpd/parasites/cryptosporidiosis/factsht_crypto_prevent_water.htm).

In the United States, nationally distributed brands of bottled or canned carbonated soft drinks are safe to drink. Commercially packaged non-carbonated soft drinks and fruit juices that do not require refrigeration until after they are opened (those that are stored unrefrigerated on grocery shelves) also are safe.

### If you are unable to avoid using or drinking water that might be contaminated, then you can make the water safe to drink by doing one of the following:

- Heat the water to a rolling boil for at least 1 minute. **OR**
- Use a filter that has an absolute pore size of 1 micron or smaller, or one that has been NSF rated for "cyst removal."

**Do not rely on chemicals** to disinfect water and kill *Cryptosporidium*. Because it has a thick outer shell, this particular parasite is highly resistant to disinfectants such as chlorine and iodine.

### Avoid food that might be contaminated.

1. Use safe, uncontaminated water to wash all food that is to be eaten raw.
2. After washing vegetables and fruit in safe, uncontaminated water, peel them if you plan to eat them raw.
3. Avoid eating uncooked foods when traveling in countries with minimal water treatment and sanitation systems.

### Take extra care when traveling.

If you travel to developing nations, you may be at a greater risk for *Cryptosporidium* infection because of poorer water treatment and food sanitation. Warnings about food, drinks, and swimming are even more important when visiting developing countries. Avoid foods and drinks, in particular raw fruits and vegetables, tap water, or ice made

from tap water, unpasteurized milk or dairy products, and items purchased from street vendors. These items may be contaminated with *Cryptosporidium*. Steaming-hot foods, fruits you peel yourself, bottled and canned processed drinks, and hot coffee or hot tea are probably safe. Talk with your health care provider about other guidelines for travel abroad.

**Avoid fecal exposure during sexual activity.**

*This fact sheet is for information only and is not meant to be used for self-diagnosis or as a substitute for consultation with a health care provider. If you have any questions about the disease described above or think that you may have a parasitic infection, consult a health care provider.*

From [http://www.cdc.gov/ncidod/dpd/parasites/cryptosporidiosis/factsht\\_cryptosporidiosis.htm](http://www.cdc.gov/ncidod/dpd/parasites/cryptosporidiosis/factsht_cryptosporidiosis.htm)



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